

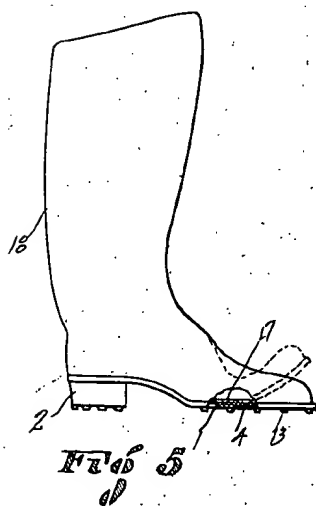
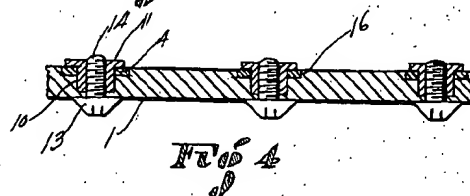
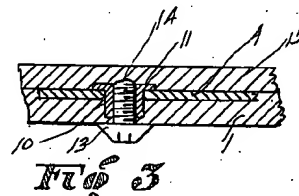
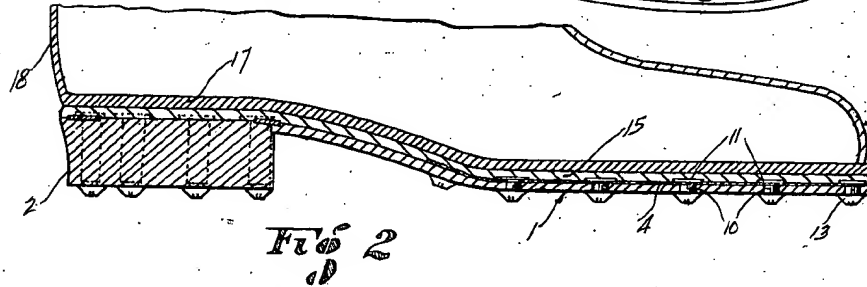
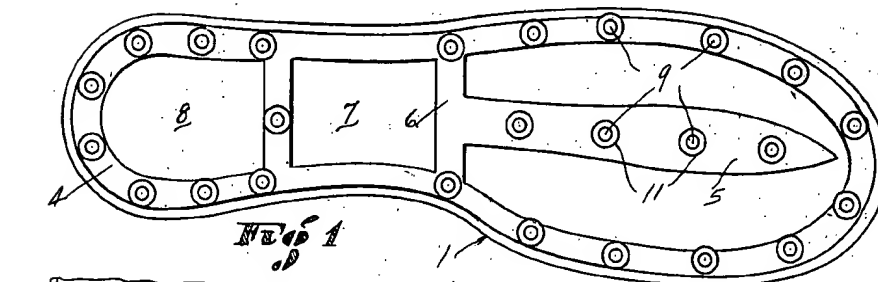
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SOLE CONSTRUCTION FOR RUBBER BOOTS

Original Filed Feb. 7, 1925



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UNITED STATES PATENT OFFICE.

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SOLE CONSTRUCTION FOR RUBBER BOOTS.

Application filed February 7, 1925, Serial No. 7,492. Renewed May 9, 1928.

This invention relates to improvements in rubber foot wear particularly rubber boots, and resides in the provision of a boot sole construction which will greatly improve the boot in many ways, for example, it will prevent the boot sole from curling up as is the case with rubber boots which are used in and around garages and other places where the effect of the oils, gasoline or acids is such as to cause the toe of the boot to curl up and remain in this position. When boots curl up at the toe in this way, they cannot be worn and must be straightened out before they can be used. To correct this it is usually necessary to put leather soles on the boot and this usually requires an inner sole of leather as well as an outer sole. This is expensive and objectionable because of the porosity of the leather. The sole construction of the invention also provides for the effective anchorage in the rubber of calk nails or calk devices without requiring the use of leather strips both on the inside and outside of the boot. Ordinarily when boots are to be worn in slippery or wet places, the wearer is obliged to have calks put on the sole of the boot. This is done by nailing strips or pieces of leather on the outside and inside of the sole, the leather strips serving as an anchorage means for the metal calks. With the present invention extraneous leather pieces are not necessary and provision is made for an easy, cheap and effective anchoring of metal calks in the sole of the boot.

One of the objects of the invention is to provide a sole construction for rubber boots which will increase the life of the boot.

Another object of the invention is to provide a sole construction of the character described which provides for the anchoring of metal calks in the sole by screwing the calks into place thereby providing for renewal of worn or damaged calks, or the replacement of lost calks with little or no trouble and expense.

While the devise of this invention is primarily intended to be embodied in a boot as it is first manufactured, it is possible to construct a sole in accordance with the invention and by removal of a portion of the sole of the ordinary rubber boot, provide for the incorporation of the boot sole of this invention with said boot.

With the above mentioned and other objects in view, the invention consists in the

novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claim hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Referring to the drawing:

Fig. 1 represents a top plan view of a part of a boot sole constructed in accordance with the present invention.

Fig. 2 represents a fragmentary longitudinal section of the lower portion of a rubber boot showing the sole construction of this invention.

Fig. 3 represents an enlarged detail sectional view taken through a part of the sole showing the method of removably incorporating the calks.

Fig. 4 represents a transverse sectional view taken through the sole.

Fig. 5 represents a side elevation of a rubber boot constructed in accordance with the invention, the boot being broken away and shown partly in section.

The embodiment of the invention shown in the accompanying drawing comprises a rubber sole and heel section 1 having an integral heel 2, likewise made of rubber. Mounted on the upper side of this rubber sole and heel section is a thin metal stiffening plate 4, preferably formed of steel and being comparatively resilient. This plate is of skeleton form, being cut out in the sole portion to provide a central tongue 5 joined at its inner end to a cross piece 6. The plate is also provided with large openings 7 and 8 at the instep and heel portions thereof. Around the margins of the plate and in the tongue portion are a plurality of openings 9 through which internally screw threaded sockets 10 are inserted, there being heads 11 on the sockets which engage the upper side of the plate. The sockets extend through the rubber and their lower ends are close to the outer surface of the rubber. They not only provide means for holding the stiffening plate in place but serve as anchorage means for metal calk members 13 which have screw threaded stems 14 adapted to be received in the sockets. These calks may be readily inserted and will remain firmly anchored in the sole. By this arrangement

provision is made for ready replacement of the lost or worn calks.

The metal plate is of less width than the rubber sole and heel section so that said section extends considerable beyond the outer edge of the metal plate. This leaves a comparatively wide margin which with the spaces between the portions of the skeleton plate provide for an effective uniting of the rubber sole and heel section with another similar section designated 15. The section 15 is placed on the plate and section 1 after the plate has been mounted in place, and the sockets inserted in position. The two rubber sections are then suitably vulcanized so that the plate is encased or embedded between the sections. To insure a secure joining or uniting of said sections the lower section 1 may be grooved as at 16 and the skeleton plate countersunk in the grooved portion, this bringing the sections in intimate contact. The tongue 5 provides for a certain amount of resiliency in the sole construction of this invention. The cross piece 6 provides for the necessary strength and rigidity in the plate.

The sole construction of this invention comprising a rubber sole portion made up of two rubber sections vulcanized together and containing between them a metal stiffening plate is adapted to be vulcanized onto the bottom rubber portion 17 of the boot 18, in order to join the sole to the boot. This process of attaching the sole to the boot is carried out in the same manner as usually employed in the art of making boots wherein the sole and heel portion are first formed and then later vulcanized onto the other portion of the boot. The stiffness given the sole of the boot by the plate will prevent the rubber sole from curling upward as shown in dotted lines in Fig. 5. This bending or curling upward of the toe portions of the rubber boot is brought about apparently by the effect of gasoline, oils or acids on the rubber. In garages and in other places where gasoline, oils and certain acids come in contact with the soles of the boot, this

bending up or curling upward of the toes of the boots frequently occurs. To correct this it is necessary to fix leather strips to the sole and this causes a waste of time and is expensive. The application of metal calks to a rubber boot likewise requires the addition of leather strips to the sole in order to provide an anchorage for the metal calks. With the construction of this invention, it is only necessary to insert the screw threaded shanks of metal calks into the sockets which are available, through openings in the sole of the boot, in order to fit the boot with calks. This same idea is carried out in the heel 2, the sockets being longer as shown in Fig. 2.

This invention may be said to comprise a rubber boot sole or tread having embedded therein a stiffening plate which serves to prevent the upturning or curling of the toe portions of the sole of the boot and serves as an effective anchorage for calks, making possible the insertion of calks into the rubber soles without depending upon driving the calks in place as nails are driven. However, a stiffening element or plate other than metal may be used and in this event would serve as an effective medium for aiding in the retention of calks or nails driven into or inserted through the tread portion of the sole and through or into the stiffening element.

We claim:

An integral rubber sole and heel made for rubber boots having a resilient metal plate of skeleton form embedded in and completely covered by said sole and heel and substantially following the outline of the sole and heel with its outer edge located close to but spaced from the outer edge of the rubber sole and heel piece, and socket members carried by said plate, said sole and heel portions having openings in the tread thereof into which said sockets extend whereby calks may be attached to the sole and heel portion.

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